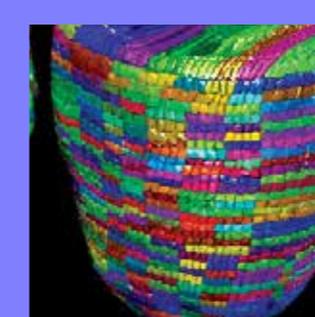
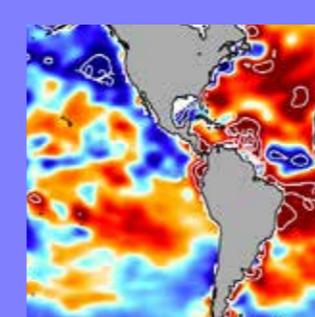
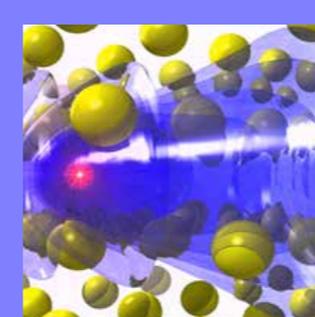
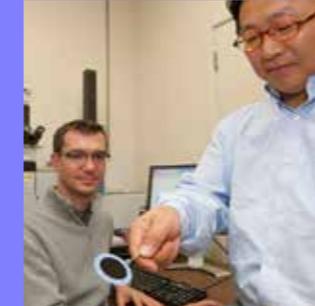
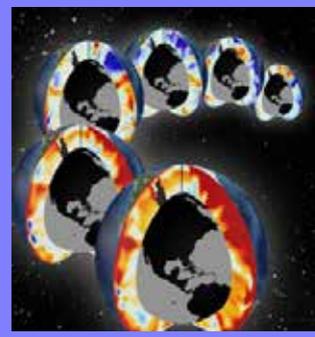


NEWSLINE

2012 YEAR IN REVIEW

LAWRENCE LIVERMORE NATIONAL LABORATORY



AWARDS & RECOGNITION



YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY

The Laboratory's top 10 science stories of 2012

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This issue of *Newsline* was produced by the Public Affairs Office. It represents a sample of the science and technology, operations and people highlights of the year. It is available on the [LLNL Website](#).

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In 2012, Lawrence Livermore National Laboratory continued to build on 60 years of translating basic science concepts into technologies that address pressing real world problems while expanding the boundaries of fundamental science. The top 10 science and technology stories of the year are a reflection of the Laboratory's ability to apply its core national security competencies to a broad set of national and global challenges, including: energy; climate change; biodefense and detection; forensic science; high performance computing; and materials science.



Because evaluating the long-term impact of recent scientific developments on a field of study or science in general is difficult at best, the following advances are not listed in order of scientific importance. These represent only a sampling of the science and technology stories during the 2012 calendar year.

1. New heavy elements join the periodic

table: The International Union of Pure and Applied Chemistry (IUPAC) officially approved new names for elements 114 and 116, the latest heavy elements to be added to the periodic table. Scientists of the Lawrence Livermore-Dubna collaboration proposed the names as Flerovium for element 114, with the symbol Fl, and Livermorium for element 116, with the symbol Lv, late last year. [Read more](#)

2. Pushing the boundaries of high performance

computing: In partnership with IBM, LLNL deployed Sequoia, a 20-petaflop BlueGene/Q system, which in June was No. 1 on the industry-standard Top500 list of the world's most powerful supercomputers, the Green 500 list of the world's most energy efficient HPC systems and the Graph 500 list of systems able to solve analytic problems – the proverbial search for the needle in the haystack. Sequoia dropped to No. 2 on the November 2012 Top500. Sequoia's power made possible the development of Cardioid, a detailed 3D simulation of the human heart's electrophysiology

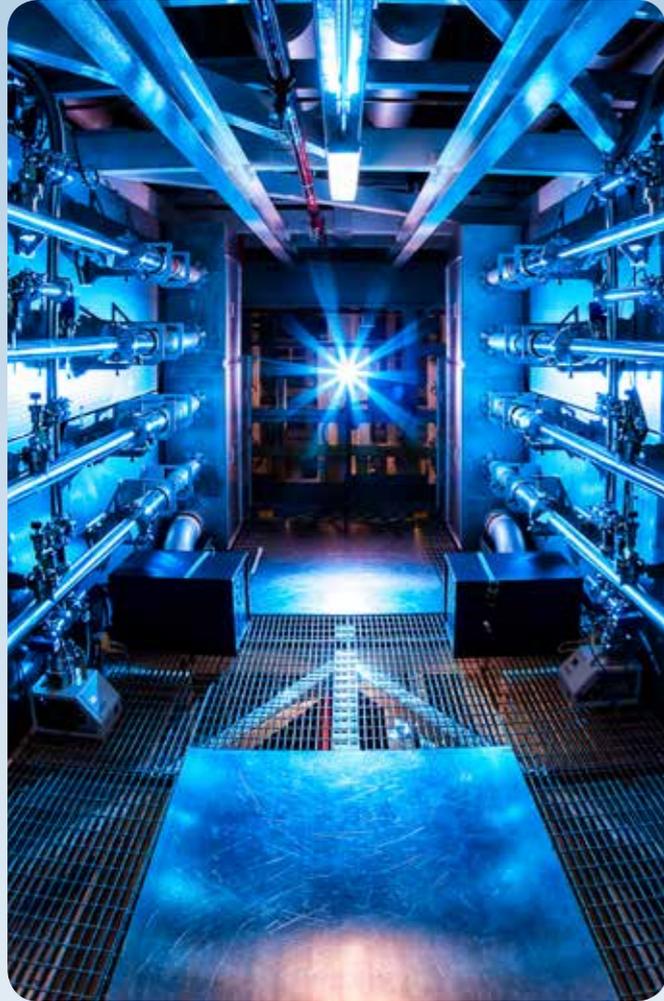
that can model a beating heart in near real time.

Developed in partnership with IBM, Cardioid has the potential to advance the treatment of arrhythmia and the development of new drugs and therapies. The techniques developed to model a system as complex as the human heart will be applicable to National Nuclear Security Administration missions in stewardship of the nation's nuclear deterrent when Sequoia transitions to classified work in early 2013. [Read more](#)

3. A milestone for laser fusion science and

technology: Fifteen years of work by LLNL's National Ignition Facility (NIF) team paid off on July 5 with an historic record-breaking laser shot. The NIF laser system of 192 beams delivered more than 500 trillion watts (terawatts or TW) of peak power and 1.85 megajoules (MJ) of ultraviolet laser light to its target. Five hundred TW is 1,000 times more power than the United States uses at any instant in time, and 1.85 MJ of energy is about 100





times what any other laser regularly produces today. The shot validated NIF's most challenging laser performance specifications set in the late 1990s, when scientists were planning the world's most energetic laser facility. Combining extreme levels of energy and peak power on a target in NIF is a critical requirement for achieving one of physics' grand challenges — igniting hydrogen fusion fuel in the laboratory and producing more energy than that supplied to the target. [Read more](#)

4. Providing a better understanding of the causes and effects of climate change: Extreme summer temperatures already are occurring more frequently in the United States, and will become normal by mid-century if the world continues on a business-as-usual schedule of emitting greenhouse gases. By analyzing observations and results obtained from climate models, a study led by Phil Duffy of Lawrence Livermore showed that previously rare high summertime temperatures are already occurring more frequently in some regions of the 48 contiguous United States. [Read more](#)

Other Lawrence Livermore contributions to the understanding of climate change include:

- The observed ocean warming over the last 50 years is consistent with climate models only if the models include the impacts of observed increases in greenhouse gases during the 20th century. [Read more](#)
- A clear change in salinity has been detected in the world's oceans, signaling shifts and acceleration in the global rainfall and evaporation cycle that is tied directly to climate change. [Read more](#)
- By deciphering the makeup of a bacterium found

in the soil of a tropical rain forest, scientists may have a better understanding of how to more efficiently produce biofuels. The production of liquid fuels derived from plant biomass offers a promising technology for reducing greenhouse gas emissions and dependence on fossil fuels.

5. Developing a new forensic approach to identifying human remains: In an effort to identify the thousands of John/Jane Doe cold cases in the United States, a Lawrence Livermore researcher and a team of international collaborators have found a multidisciplinary approach to identifying the remains of missing persons.

Using "bomb pulse" radiocarbon analysis developed at Lawrence Livermore, combined with recently developed anthropological analysis and forensic DNA techniques, the researchers were able to identify the remains of a missing child 41 years after the discovery of the body. [Read more](#)

6. Early stages of radiation damage simulated for the first time: For the first time, LLNL researchers simulated and quantified the early stages of radiation damage that will occur in a given material. The new method opens up the possibility of predicting the effect of radiation on a wide range of complex materials. The research not only applies to materials for nuclear applications, but also for materials related to the space industry, and new processing techniques for lasers and highly energetic ions. In biology and medicine, it also may contribute to understanding the effects of radiation on living tissues, both for damage and therapeutic processes. [Read more](#)

The preamplifiers of the National Ignition Facility are the first step in increasing the energy of laser beams as they make their way toward the target chamber. NIF recently achieved a 500-terawatt shot - 1,000 times more power than the United States uses at any instant in time.

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LLNL biologist Crystal Jaing loads a fluorescently labeled viral DNA sample onto the Lawrence Livermore Microbial Detection Array as fellow biologist James Thissen watches.

7. Plastic developed for the detection of nuclear material for improved protection of ports and large facilities:

In a key discovery, a team of LLNL researchers developed the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so. As a result, the new technology could assist in detecting nuclear substances such as plutonium and uranium that terrorists might use in improvised nuclear devices, and could help in detecting neutrons in major scientific projects. With the material's low cost, huge plastic sheets could be formed easily into dramatically larger surface areas than other neutron detectors currently used and could aid in the protection of ports, stadiums and other large facilities. [Read more](#)

8. Novel nanotube fabric developed to protect soldiers in the field:

Laboratory scientists and collaborators begin development of a new military uniform material that repels chemical and biological agents using a novel carbon nanotube fabric. The material will be designed to undergo a rapid transition from a breathable state to a protective state. The highly breathable membranes would have pores made of a few-nanometer-wide vertically aligned carbon nanotubes that are surface modified with a chemical warfare agent-responsive functional layer. Response to the threat would be triggered by a direct chemical warfare agent attack to the membrane surface, at which time the fabric would switch to a protective state by closing the carbon nanotube pore entrance or by shedding the contaminated surface layer. [Read more](#)

9. High performance coating technology developed to protect materials:

High Velocity Laser Accelerated Deposition (known as HVLAD) is a new photonic method

“ Quotables ”

We see our work as being at the beginning. We're excited about where our research is heading. We would like to study and see whether the plastic scintillators can achieve results at the same level as the best crystals.

– LLNL materials scientist Natalia Zaitseva

for producing protective coatings with ultra-high-strength, explosively bonded interfaces. These coatings prevent corrosion, wear and other modes of degradation in extreme environments. The integrity of the interfacial bond achieved with HVLAD enables industrial systems to achieve exceptional reliability and service life. This could be highly valuable for protecting the nation's industrial infrastructure from degradation caused by prolonged exposure to extreme [environments](#). HVLAD was one of six technologies Lab researchers had a hand in developing that earned an R&D 100 Award. [Read more](#)

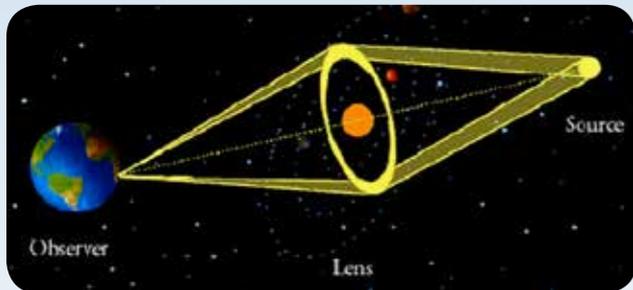
10. LLNL licenses microbial detection array for food safety, law enforcement and medical research:

The Laboratory licensed its microbial detection array technology to a St. Louis, Mo.-based company, MOgene LC, a supplier of DNA microarrays and instruments. Known formally as the Lawrence Livermore Microbial Detection Array (LLMDA), the technology could enable food safety professionals, law enforcement, medical professionals and others to detect within 24 hours any virus or bacteria that has been sequenced and included among the array's probes. [Read more](#)

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The planet GJ 1214b, shown here in an artist's conception with two hypothetical moons, orbits a "red dwarf" star 40 light-years away from Earth.



Gravitational microlensing occurs when light from a source star is bent and focused by gravity as a second object (the lens star) passes between the source star and an observer on Earth. A planet rotating around the lens star will produce an additional deviation in the microlensing. Image courtesy of the Space Telescope Science Institute.

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JANUARY 2012

SCIENCE AND TECHNOLOGY

Popular Science magazine names a dozen stories to expect in 2012 and LLNL garners two of those spots. IBM is building a computer that will churn through 20 quadrillion calculations a second and the National Ignition Facility will start experiments to produce a net energy gain. [Read more](#)

LLNL scientists work to predict the unpredictability of wind energy, which can shift drastically over the course of years, days, hours or even minutes. Lab scientist Chandrika Kamath notes that wind energy can increase or decrease by a large amount or in a short time.

[Read more](#)

Lab scientist Lars Borg's research about the age of the moon earns a spot among the top 100 stories of 2011 in *Discovery Magazine*. [Read more](#)

In a key discovery, a team of LLNL researchers develops the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so. The new technology could assist in detecting nuclear substances such as plutonium and uranium that might be used in improvised nuclear devices by terrorists. [Read more](#)

There are more exoplanets further away from their parent stars than originally thought, according to new astrophysics research. Astrophysicist Kem Cook, as part of an international collaboration, analyzes microlensing data that bridges the gap between a recent finding of planets farther away from their parent stars and

“ Quotables ”

“Our measurements confirm that low-mass planets are very common and the number of planets increases with decreasing planet mass, in an agreement with the predictions of the core accretion scenario of planet formation. Planets around stars in our galaxy appear to be the rule rather than the exception.”

– Lab researcher Kem Cook

observations of planets extremely close to their parent star. [Read more](#)

Lab postdoctoral researcher Lance Simms and a team from Morehead State University Space Science Center deliver a satellite to NASA's Launch Services Program, marking a major milestone in the Space Science Nanosatellite program. Simms plays a critical role in the project by modeling and simulating the detector onboard the nanosatellite and also wrote the control software that moves the spacecraft. [Read more](#)

By looking at the stability of the atmosphere, wind farm operators could gain greater insight into the amount of power generated at any given time, according to findings by LLNL researcher Sonia Wharton and colleagues at the University of Colorado at Boulder and the National



Natalia Zaitseva, an LLNL materials scientist, leads a team of Livermore researchers that has developed the first plastic material capable of efficiently distinguishing neutrons from gamma rays, something not thought possible for the past five decades or so.

Renewable Energy Laboratory. [Read more](#)

Lab scientists and international collaborators create the shortest, purest X-ray laser pulses ever achieved, fulfilling a 45-year-old prediction and ultimately opening the door to new medicines, devices and materials. [Read more](#)

PEOPLE

Seven scientists and managers from the Algerian Atomic Energy Commission, including the commission's chairman, visit the Laboratory. During their two-day LLNL visit, the Algerian visitors discuss the status of ongoing projects and receive presentations from U.S. technical experts. [Read more](#)

This year, 85 families — a total of 378 individuals, plus nine senior couples and 18 senior singles — are 'adopted' by LLNL organizations through the Brighter Holidays Program. [Read more](#)

Al Ramponi, who currently serves as associate deputy director for Science and Technology, is selected as Director Parney Albright's chief of staff. [Read more](#)

The Blue Ribbon Commission on America's Nuclear Future releases its report on a new strategy for managing the back end of the nuclear fuel cycle. LLNL's Tom Isaacs is lead adviser to the commission. [Read more](#)

Bruce Darling, vice president for laboratory management at the University of California, joins the National Academy of Sciences and National Research Council as

“ Quotables ”

“Working on the National Ignition Campaign has been the highlight of my career. I feel privileged to work on a program as important and challenging as this, on the premier laser facility in the world with a truly remarkable team. It's hard not to be excited about that.”

—Lab researcher John Edwards

executive officer. [Read more](#)

Jorge Cham, comic strip writer and creator, discusses his feature film and series, “The PHD Movie,” created from the Web series, “Piled Higher and Deeper.” [Read more](#)

OPERATIONS

LLNL's Cyber Security Program deploys a new capability to Windows and Mac computers that will protect systems from being simultaneously connected to a “wired” network and a “wireless” network. [Read more](#)

LLNL Health Services offers a risk factor screening, including a quick fingerstick blood test, which is analyzed on the spot and has excellent accuracy for blood lipids and glucose. The whole evaluation and results review takes about 20 minutes. [Read more](#)

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Wind turbines can produce different amounts of power due to different “shapes” in the wind.

A new version of LTRAIN is implemented at Lawrence Livermore. The new system uses current technology to provide new capabilities while maintaining key functions requested by users. [Read more](#)

LLNL employees looking for work assignments or managers looking for people to fill them have a new resource at their disposal: LLNL CONNECTIONS™, a LabBook group that serves as a resource for connecting LLNL employees and temporary work assignments.

[Read more](#)

FEBRUARY

SCIENCE AND TECHNOLOGY

LLNL’s popular lecture series, “Science on Saturday,” returns. This year’s talks cover a wide range of current topics including LLNL’s work on the Mercury Messenger; effects of earthquakes; space junk; and restoring sight to the blind. [Read more](#)

Using models similar to those used in weapons research, scientists may soon know more about exoplanets, those objects beyond the realm of our solar system. [Read more](#)

Integrated Dynamic Electron Solutions Inc. is using LLNL’s technology to compete in the U.S. Department of Energy’s “America’s Next Top Energy Innovator Challenge,” a competition where Americans vote online for the most innovative and promising startup

“ Quotables ”

“We found that wind turbines experienced stable, near-neutral and unstable conditions during the spring and summer. But daytime hours were almost always unstable or neutral while nights were strongly stable.”

– Lab researcher Sonia Wharton

companies. [Read more](#)

Computers can make finding new ways of decontaminating the deadliest known chemicals safer and easier. An LLNL team shows that using first principles molecular dynamics can reduce the number of dangerous experiments needed. [Read more](#)

Using high-powered lasers, LLNL scientists and collaborators discover that molten magnesium silicate undergoes a phase change in the liquid state, abruptly transforming to a more dense liquid with increasing pressure. The research provides insight into planet formation. [Read more](#)

Lawrence Livermore is at the forefront of a new field known as chemical forensics. The goal is to take analytical techniques that have been used for forensic analysis and use them to attribute weaponized toxic chemicals or related substances to their sources. [Read more](#)

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The Vegetation Drought Response Index (VegDRI) incorporates satellite observations of vegetation to monitor at a finer spatial detail than other commonly used drought indicators.

Julio Friedmann, LLNL carbon management program leader, conducts a study whether the low costs reported at a China's Huaneng post-combustion carbon capture plant outside Shanghai could be applied to Duke Energy's largest power plant, its Gibson facility in Owensville, Ind. [Read more](#)

LLNL researchers and a team of American Indian scientists and engineers partner to study the possible use of Black Earth technology to help mitigate the uptake of radiocesium in locally grown foods in the Marshall Islands. [Read more](#)

LLNL developer of the JCATS (Joint Conflict and Tactical Simulation) system launches a two-year effort to see whether the U.S. military's bedrock constructive simulation can be moved to a cloud-and-browser system. [Read more](#)

By analyzing observations and results obtained from climate models, a study led by Phil Duffy of LLNL shows that previously rare high summertime (June, July and August) temperatures are already occurring more frequently in some regions of the 48 contiguous United States. [Read more](#)

PEOPLE

Carolyn MacKenzie, a health physicist at LLNL, holds a job that most people have never heard of. Yet it is one she sees as increasingly important in the 21st century. Part of Mac Kenzie's job is to track orphan sources of radiation. [Read more](#)

“ Quotables ”

“This work presents a big advance in the quest for shorter wavelength lasers. In addition, the demonstration of the neon X-ray laser provides a very sensitive test of the physics of intense X-ray interaction with atoms.”

– LLNL scientist Rich London

LLNL and the Navajo Nation sign a Memorandum of Understanding to further mutual energy collaborations. LLNL and the Navajo Nation plan to collaborate in an array of areas including energy security; carbon sequestration; coal gasification; shale gas; enhanced oil recovery; wind, geothermal and solar; environmental studies and other areas. [Read more](#)

A number of LLNL employees assist with the 33rd annual Tri-Valley Expanding Your Horizons Conference at Diablo Valley College's San Ramon campus. The daylong event is held for girls, grades 6-9, from Dublin, Livermore, Pleasanton, San Ramon and Sunol school districts to increase interest and foster awareness of careers in math and science. [Read more](#)

At the Alameda County Cattle Women's second annual Dutch Oven Gathering in November, LLNL's Merry Carter bests 10 cooks to win two of the competition's six

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A delegation of seven scientists and managers from the Algerian Atomic Energy Commission visit LLNL Jan. 23-24. Bill Carl (far right), a health physicist and the head of the Lab's radiation calibration laboratory in Bldg. 255, discusses the operation of some of the lab's equipment. Shown left to right are Mohamed Derdour, chairman of the commission, Mehenna Arib and Tahar Zidi.

categories. Her winning recipes are enchilada pie and pumpkin pie cake. [Read more](#)

Buck Koonce is named director of Economic Development for Integration of Laboratory Partnership Activities. [Read more](#)

OPERATIONS

LLNL scientists and engineers are asked to ready their entries for the annual R&D 100 awards competition, which this year will observe its 50th anniversary of recognizing the top 100 emerging technologies. [Read more](#)

The Ethics Office rolls out a Labwide, Web-based, employee Conflict of Interest (COI) Certificate in LAPIS.

[Read more](#)

The University of California reviews more than 400 proposals for research programs that will be funded through the fee UC receives for managing Lawrence Livermore and Los Alamos. More than half those proposals (236) are based on collaborations with Livermore researchers. [Read more](#)

The archery range on the Livermore campus will soon open for recreational use by Archers' (LLESA networking group) members. [Read more](#)

Lawrence Livermore's Hanif Nassor-Covington, a 20-plus year Laboratory employee and a member of the African-American Body of Black Laboratory Employees, discusses the "The Mysteries of History" during a Black History Month presentation. [Read more](#)

“ Quotables ”

“Current theoretical techniques for calculating electronic structures can predict equation of state relevant to planetary interiors. But we still need experimental validation of these calculations; something that can now be done at the National Ignition Facility (NIF).”

– Lab researcher Damian Swift

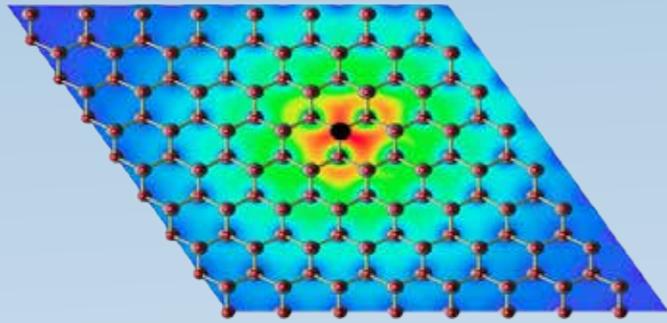
MARCH

SCIENCE AND TECHNOLOGY

Lawrence Livermore co-sponsors the “North Dakota Energy Symposium: Using Technology to Enhance Clean Energy Production.” The symposium is a follow-up to the National Summit on Advancing Clean Energy Technology and organized by the Howard Baker Forum, the Bipartisan Policy Center and LLNL. [Read more](#)

Postdoc Andre Schleife, who works in the Lab's Quantum Simulations Group, develops a new approach to investigate the interplay of excitonic effects and electron doping. His research appears in *Physical Review Letters*. [Read more](#)

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Visualization of the probability of finding an excited electron in zinc-oxide in the vicinity of the hole (indicated by the black dot). In order to understand the exciton in this transparent conducting oxide (TCO), the hole is assumed to be localized at an oxygen atom.

At the request of the Air Force Joint Space Operations Center, scientists from three LLNL organizations collaborate to develop software that offers a new approach to predict spacecraft re-entries. [Read more](#)

A team of LLNL biologists moves one step closer to solving the mystery of how cells repair themselves. Their research paper is selected by the journal *Environmental and Molecular Mutagenesis* as the editor's choice and cover story for the March 2012 issue. [Read more](#)

Simulation and cyber security experts from national labs, industry, academia and government agencies gather at Lawrence Livermore to explore ways to better exploit increasingly powerful modeling and simulation capabilities in defense of the nation's network infrastructure. [Read more](#)

The National Ignition Facility achieves another significant milestone by setting an unprecedented record for laser energy. NIF fires all 192 of its beams to deliver 1.875 million joules of ultraviolet light to the target chamber's center, reaching 411 trillion watts of power. This feat solidifies NIF as the world's most energetic laser and marks another key achievement in the National Ignition Campaign's drive toward fusion ignition. [Read more](#)

The National Ignition Facility is featured in a segment about the progress toward ignition on "CBS Sunday Morning." *New York Times* technology columnist and CBS News contributor David Pogue interviews NIF Director Ed Moses. Pogue also visits the Center for Accelerated Mass Spectrometry and other Laboratory facilities for the PBS Nova program "Hunting the Elements." [Read more](#)

“ Quotables ”

“Modeling and simulation are key to thwarting rapidly evolving cyber threats.”

– Celeste Matarazzo, organizer of the Lab's cyber security workshop, which hosted experts from national labs, industry, academia and government agencies

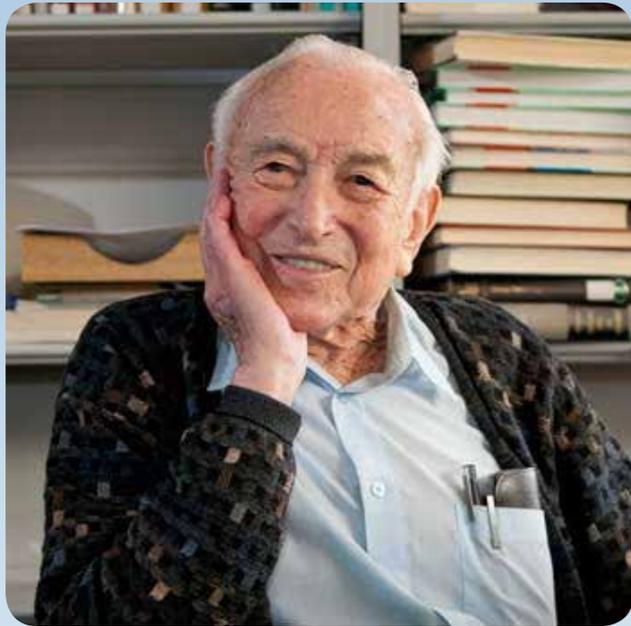
LLNL announces the selection of six industry projects for the advancement of energy technologies using high performance computing (HPC). Called the "hpc4energy incubator," this pilot program aims to innovate and accelerate the development of energy technology and boost U.S. economic competitiveness in the global marketplace by teaming industry with the scientific and computing resources at national laboratories. [Read more](#)

PEOPLE

Joseph Nye, a distinguished service professor at Harvard University and former dean of Harvard's Kennedy School of Government, discusses how the United States can effectively project power in the information or cyber age, during a lecture sponsored by the Center for Global Security Research. [Read more](#)

Laura Furstenthal and Heather Sumner of McKinsey and Company present key findings from a report during a

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After 60 years at the Lab, Dick Post still works in magnetic levitation.

Women's History Month presentation, "Unlocking the Full Potential of Women in the U.S. Economy." [Read more](#)

Three experts on nuclear terrorism — Brian Jenkins, John Mueller and Michael Nacht — share their views during the seminar, "Nuclear Terrorism: What Is the Threat and How Serious Is It?" sponsored by the Center for Global Security Research and N Program. [Read more](#)

Ambassador Mitchell Reiss, president of Washington College, examines the threat of terrorism to U.S. security and international peace, during his presentation "Should We Talk to Terrorists." [Read more](#)

Dick Post, a Lab physicist for 60 years, is featured in KGO-TV's segment "Drive to Discover," where he discusses his patents and inventions in magnetic levitation technology. [Read more](#)

LLNL's Bruce Macintosh, astronomer, and Lisa Poyneer, engineer, present "Building an Instrument to Image Extra-Solar Planets," at the first of this year's "Science and Engineering Seminar Series — Theory to Practice: How Science Gets Done," a popular program provided in partnership by LLNL and Las Positas College. [Read more](#)

OPERATIONS

A new communication produced by LLNL postdocs for postdocs, entitled "Paper/Work," is published as the LLNL Postdoctoral Association newsletter. [Read more](#)

Lawrence Livermore National Security, the entity that

“ Quotables ”

I like what I'm doing, and it's a great environment.”

– Physicist Dick Post, during a segment on KGO-TV, about working at the Lab for 60 years

manages LLNL, distributes gifts of \$10,000 each to five school districts in the neighboring cities of Livermore, Pleasanton, Dublin, San Ramon and Tracy — in support of their respective science programs.

[Read more](#)

As the Lab gears up for its annual "Get Active" competition, Lawrence Berkeley Director Paul Alivisatos hands over the "shoe trophy" to LLNL Director Parney Albright, signifying that LLNL is "the fittest lab" in the Bay Area in 2011, with employees exercising an average of 45.9 minutes per person per day. [Read more](#)

The Department of Energy approves the request to initiate employer contributions to the LLNS Defined Benefits Plan, or TCP1. The approved employer pension contributions total \$20 million for fiscal year 2012 and are set to begin in June at 5 percent of pay. [Read more](#)

The Lawrence Livermore Laboratory Women's Association (LLLWA) presents its annual scholarship awards totaling \$10,000 to nine recipients. [Read more](#)

Sodexo Government Services, in coordination with LLNL Food Services and Starbucks, launches a grand re-opening

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From left, front row: Winners of the 2012 LLLWA scholarships are Angela Jefferson, Lisa Gash, Susan Lucas and Marisa Torres. From left, back row: Jesse Pugh, Steven Kenyon, Paula Peterson, and Kimberly Budil (keynote speaker). Absent from the photo are Kristin Atwood and Julie La Rosa.

of the coffee bars at the West and Central cafeterias. [Read more](#)

APRIL

SCIENCE AND TECHNOLOGY

The Institutional Science & Technology Office (ISTO) hosts a series of town hall meetings where strategic focus area leaders and discipline associate directors present their strategies and discuss FY13 priorities within their respective areas. [Read more](#)

Nobel prize-winning chemist Glenn T. Seaborg is honored on what would have been his 100th birthday — April 19. Lawrence Livermore, Lawrence Berkeley and Los Alamos national laboratories, along with UC Berkeley, honor the event with a one-day symposium at UC Berkeley, part of the Campus CAL day celebrations. [Read more](#)

Many Lab scientists present their research at the Materials Research Society's "Actinides-Basic Science, Applications, and Technology" symposium in San Francisco. [Read more](#)

Work on surrogate nuclear reaction approach is featured in a recent issue of the journal, *Reviews of Modern Physics*. The new research is the culmination of a decade of experimental and theoretical effort by many scientists at LLNL. [Read more](#)

Lawrence Livermore National Laboratory is among the many noted exhibitors and presenters featured at the Second USA Science & Engineering Festival Expo, the

“ Quotables ”

“This milestone is an example of the Lab’s commitment to innovation and excellence in science and technology, not only in fulfilling our national security missions but in improving the quality of our lives.”

— LLNL Director Parney Albright on NIF’s milestone of delivering 1.875 million joules of ultraviolet light to the target chamber’s center, reaching 411 trillion watts of power

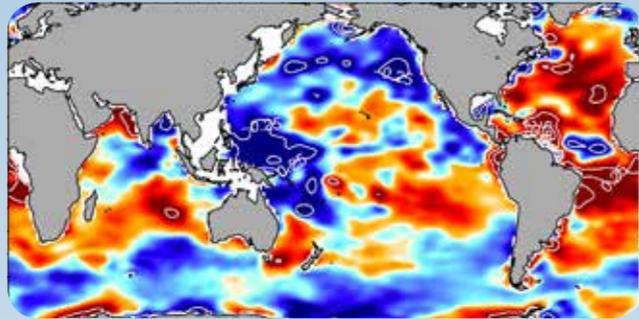
nation’s largest celebration of science and engineering, held in Washington, D.C. The festival attracts about 100,000 participants. [Read more](#)

Researchers from the Scripps Institution of Oceanography at UC San Diego and Lawrence Livermore reconstruct a timeline of historical change in coral reefs near Bocas del Toro in Panama and discover that damage to the area is caused by man as far back as the late 1800s. [Read more](#)

About 300 people from industrial firms, the military services, national laboratories, the U.S. Department of Defense and Commonwealth allies gather at LLNL for the 18th annual Phoenix Challenge Conference for cyberspace operations. [Read more](#)

Scientists from the Australian Commonwealth Scientific and Industrial Research Organisation and Lawrence

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Surface salinity changes for 1950 to 2000. Red indicates regions becoming saltier, and blue regions becoming fresher.

Livermore report changing patterns of salinity in the global ocean during the past 50 years, marking a clear symptom of climate change. The research is published in the journal *Science*. [Read more](#)

PEOPLE

Ambassador Robert Gallucci, president of The John D. and Catherine T. MacArthur Foundation, presents “Nuclear Proliferation: What’s to Worry About?” at a Center for Global Security Research seminar, where he discusses the issue of preventing nuclear proliferation. [Read more](#)

Frances Alston is selected as the director for Environmental Safety and Health (ES&H), reporting to Deputy Director Tom Gioconda and serving as a member of LLNL’s senior management team. [Read more](#)

Abdul Awwal of Laser Systems Engineering and Operations and a fellow of SPIE and OSA, coauthors a book entitled “Field Guide to Image Processing.” [Read more](#)

Rajit Gadh, founder and director of the Smart Grid Energy Research Center at UCLA presents, “Smart Grid: Opportunities and Challenges in the Creation of the 21st Century Power Grid.” [Read more](#)

Hundreds of children and teens accompanied by their parents come to LLNL for “Take Our Daughters and Sons to Work Day.” The goal is to acquaint girls and boys with the importance of what a parent or mentor in their lives does during the workday and also stresses the value

“ Quotables ”

“The only safe place is where you are standing.”

– Brian Cracchiola, a 15-year Lab employee who returned from a tour of duty in support of the NATO Training Mission-Afghanistan where he served as an instructor and adviser at the CTC-A in Kabul

of education. More than 40 spouses and 644 children attend the event. [Read more](#)

Rick Sweitzer, principal investigator for the Sierra Nevada Adaptive Management Project Fisher Study, gives a talk during Earth Week about his efforts traversing the Yosemite Valley in search of an animal that most people will never see — the Pacific Fisher. [Read more](#)

Lt. Gen. Michael Babero, director for the Joint IED Defeat Organization, discusses “Improvised Explosive Devices (IEDs): The Evolving Threat and R&D Capability Gaps,” during a presentation at LLNL. [Read more](#)

OPERATIONS

The annual Good Friday protest at LLNL draws about 100 people and closes the West Gate entrance for about two hours. After ritual prayer, dance and songs, 34 protesters are arrested for blocking a public roadway. [Read more](#)

LLNL celebrates Earth Week with many activities, workshops and lectures on environmental stewardship

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



Future biologists, (from left) Elizabeth Nichols, Aiden Long, Zakaraya Khater and Zyad Khater inspect a sample from Lake Haussmann taken by wildlife biologist Megan Lawler during a nature walk at “Take Our Daughters and Sons to Work Day.”

and outreach, wildlife and recycling. Capping off the week, awards are presented to employees for their environmental efforts. [Read more](#)

ICS Telecom offers a Web conferencing service as a complement to its audio teleconference service. The host and participants now can log into a browser-based Web conference where they can share slide shows and documents on their desktop, hold meetings with up to 50 attendees in various locations talking over the phone and view presentations on their computer. [Read more](#)

The kickoff ceremony of Get Active — the annual springtime fitness challenge now in its sixth year — takes place in the Central Café with a brief program for participants. [Read more](#)

As part of an LLNL sustainability project to save energy, Phase II of the LED retrofit program to replace the heads of street and parking lot light poles with energy-efficient LEDs is scheduled. Selected inefficient light fixtures are replaced with the new LEDs. [Read more](#)

The Laboratory will host a major movie production studio that will be using some areas of the NIF for filming a family-oriented movie. This production will follow along the lines of previous film crews that have visited the LLNL and NIF, whether for TV or the film industry. [Read more](#)

MAY

SCIENCE AND TECHNOLOGY

The International Union of Pure and Applied Chemistry officially approves new names for elements 114 and 116,

“ Quotables ”

“When you have computing capabilities you didn’t have before, you think differently about problems. You can ask questions you didn’t think of asking before.”

– Eugene Litinov, an executive with ISO New England, a non-profit electric grid management company, who participated in the Lab’s “hpc4energy Incubator” workshop

the latest heavy elements to be added to the periodic table. [Read more](#)

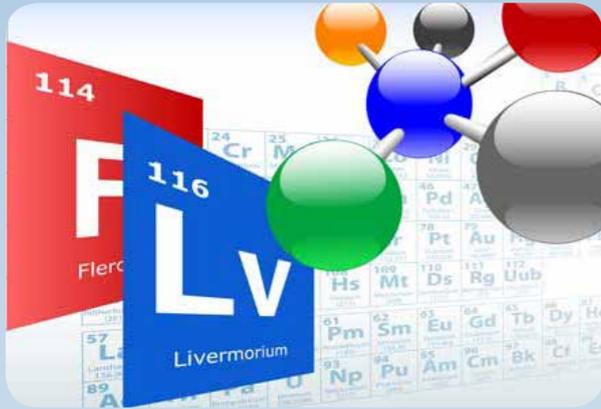
Nimble Titan 12, an international missile exercise in Virginia, is largely based on unclassified background information from ballistic missile defense work undertaken at LLNL. [Read more](#)

The 16th annual Signal and Image Sciences CASIS workshop takes place May 23 at the High Performance Computing Innovation Center. [Read more](#)

A paper co-authored by Bioscience & Biotechnology Division researchers Nicole Collette and Gaby Loots is evaluated and selected by the Faculty of 1000 (F1000), placing the work in the top 2 percent of published articles in biology and medicine. [Read more](#)

Officials announce that LLNL’s work in computational seismology research is to be featured in an upcoming full-dome show and exhibit titled “Earthquake” at the California Academy of Science. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



Scientists of the Lawrence Livermore National Laboratory (LLNL)-Dubna collaboration propose the names as Flerovium for element 114, with the symbol Fl, and Livermorium for element 116, with the symbol Lv.

LLNL researchers report that by deciphering the makeup of a bacterium found in the soil of a tropical rain forest, scientists may have a better understanding of how to more efficiently produce biofuels. [Read more](#)

LLNL researchers report that for the first time, scientists have seen an X-ray-irradiated mineral go to two different states of matter in about 40 femtoseconds (a femtosecond is one quadrillionth of a second). [Read more](#)

In an advance that may someday provide health benefits for soldiers and athletes, a team of LLNL researchers reports that it has discovered a mechanism that could be the cause of traumatic brain injuries in blast-exposed soldiers. [Read more](#)

An LLNL team led by Roger Aines reports it has developed an entirely new catalyst for separating out and capturing CO₂, one that mimics a naturally occurring catalyst operating in our lungs. [Read more](#)

In a new study appearing in the *Proceedings of the Royal Society B*, researchers report that the extinction of at least 17 species of lemurs during the last 2,000 years in Madagascar has helped determine where today's lemurs are living and breeding. [Read more](#)

Members of the fourth class of the National Security Leadership Program (NSLP) are awarded certificates of completion by Lab Director Parney Albright in a virtual graduation ceremony with Texas A&M University. [Read more](#)

“ Quotables ”

“We’re at the extreme end of things. Is there an end to the periodic table? We don’t know the answer until we create more elements.”

– Dawn Shaughnessy on the discovery of new heavy elements

PEOPLE

The Laboratory honors its Distinguished Members of Technical Staff (DMTS) during a reception in Bldg. 111. [Read more](#)

Kathy Baker is selected as chief financial officer (CFO). [Read more](#)

LLNL climate scientist Tom Guilderson discusses “Radiocarbon: Chronometer and Geochemical Tracer of the Carbon Cycle,” in a 2012 Director’s Distinguished Lecturer Series talk. [Read more](#)

Karla Hagans is appointed action officer for LLNL’s warhead efforts supporting the work under the Joint United Kingdom-United States 1958 Mutual Defence Agreement on Atomic Weapons. [Read more](#)

Cindy Atkins-Duffin moves to the White House to serve a two-year term as a senior policy analyst in the Office of Science and Technology Policy (OSTP), which is part of the Executive Office of the President. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



Director Parney Albright congratulates Kathy Baker.

Director Parney Albright is the featured speaker at the Valley Study Group's monthly banquet meeting.

[Read more](#)

Lab employees Chung Bothwell and Lee Neely are elected to serve as board members of the UNCLE Credit Union for three-year terms. [Read more](#)

Tadashi Kishi, a former LLNL employee, called the Japanese American internment camps of WWII "America's greatest shame," in an Asian Pacific American Heritage Month presentation. [Read more](#)

OPERATIONS

The Lab is honored by the Tri Valley Educational Collaborative (TEC) at a "Celebrating Partnerships and the Students They Serve" event at the Dublin Unified School District. [Read more](#)

Engineering Associate Director Monya Lane announces the restructuring of the Engineering Directorate's five divisions to better align with the strategic direction of the Laboratory. [Read more](#)

LLNL's online brainstorming tool — ideaHub — is launched, challenging Lab employees to help solve critical issues and take a virtual seat at the table with decision makers. [Read more](#)

The Alameda County Regional Emergency Communication Center, housed in Bldg. 313, celebrates a decade of service with a barbecue picnic. [Read more](#)

“ Quotables ”

“If you like seafood and don't mind being covered by bugs, you should apply to be on 'Survivor.' ”

*– Yau-Man Chan, 'Survivor' contestant
and guest speaker at LLNL*

An emergency preparedness exercise involving the northern portion of LLNL is conducted May 22. [Read more](#)

The Lab's award-winning Farmer's Market returns. [Read more](#)

The Lawrence Livermore Laboratory Armed Forces Veterans Association holds a Table of Remembrance ceremony to commemorate Memorial Day. [Read more](#)

JUNE

SCIENCE AND TECHNOLOGY

LLNL researchers for the first time simulate and quantify the early stages of radiation damage that will occur in a given material. Nuclear radiation leads to highly energetic ions that can penetrate large distances within matter, often leading to the accumulation of damage sites as the ions pass through the material. [Read more](#)

The oceans have warmed in the past 50 years, but not by natural events alone. New research by a team of

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



The Lab was honored by the Tri Valley Educational Collaborative (TEC) at the “Celebrating Partnerships and the Students They Serve” event held at the Dublin Unified School District. From left: Tony Dennis, Pleasanton Unified School District; Julie Duncan, Pleasanton Unified School District; Nadine Horner, LLNL; Richard Farnsworth, LLNL; Neal Ely, Las Positas College; and Janice Noble, Las Positas College.

LLNL scientists and international collaborators shows that the observed ocean warming over the last 50 years is consistent with climate models only if the models include the impacts of observed increases in greenhouse gases during the 20th century. [Read more](#)

For astrophysicist Bill Craig and his team, NASA’s NuSTAR opens up a whole new world. In fact, NuSTAR allows them to observe a new class of objects in space, called extreme objects, which have never been seen. [Read more](#)

Clocking in at 16.32 sustained petaflops (quadrillion floating point operations per second), Sequoia earns the No. 1 ranking on the industry standard Top500 list of the world’s fastest supercomputers. [Read more](#)

Researchers at IBM and LLNL announce that they are broadening their nearly 20-year collaboration in high performance computing (HPC) by joining forces to work with industrial partners to help boost their competitiveness in the global economy. [Read more](#)

For the first time, Lawrence Livermore researchers and international collaborators peer into the makeup of complex airborne particulate matter so small that it can be transported into human lungs — usually without a trace. [Read more](#)

Livermore Lab-developed adaptive optics technology, which was originally developed to take sharper images of outer space from ground-based telescopes, opens the door to detecting eye disease in critical early stages. [Read more](#)

“Science is explainable magic.”

— Nick Williams, Lab retiree and ‘Fun with Science’ presenter

The Engineering Directorate presents a poster showcase featuring recent work in both materials and signal processing from nearly two dozen presenters. [Read more](#)

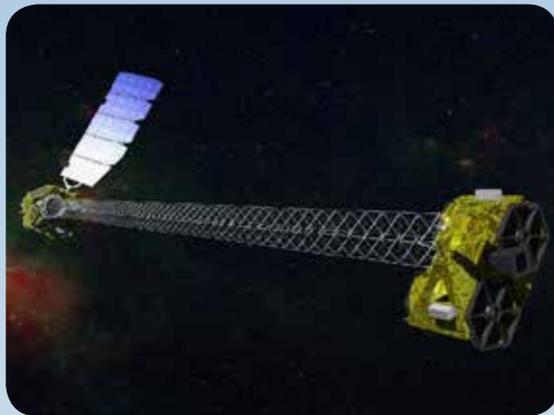
Scientists from LLNL assist the Navajo Abandoned Mine Lands Reclamation Program (NAMLRP) in developing an environmental uranium monitoring station at the Tse Tah Morrison site south of Red Mesa, Ariz. The monitoring station is the first of its kind used for characterizing the more than 1,000 abandoned uranium sites on the Navajo Nation land. [Read more](#)

PEOPLE

Five local high school seniors from Livermore and Tracy are awarded LLNL’s prestigious Edward Teller Science Scholarship. The awards, instituted in 2004 in honor of the late Dr. Teller, renowned physicist and Lab co-founder, are given annually by the Laboratory to graduating seniors who excel in science studies. [Read more](#)

Bruce Warner is named principal associate director of Global Security at LLNL. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



NuSTAR has a 30-foot mast that deploys after launch to separate the optics modules (right) from the detectors in the focal plane (left). NuSTAR has two identical optics modules to increase sensitivity. The background is an image of the galactic center obtained with the Chandra X-ray Observatory.

LLNL scientists Sonia Wharton and Jeff Mirocha conduct a remote science lesson from Livermore on wind energy via a live broadcast to Tracy High School and science teacher Dean Reese's classroom. [Read more](#)

Wes Spain is named director of the Laboratory's Office of Strategic Outcomes (OSO) by LLNL Director Parney Albright. [Read more](#)

Students at Livermore's Junction Avenue School have an opportunity that is "out of this world" when they talk with three astronauts via an in-flight education downlink from the International Space Station (ISS). [Read more](#)

David Willetts, the United Kingdom's minister of state for universities and science, visits the Lab to tour the National Ignition Facility and discuss U.S./U.K. collaborative opportunities in the areas of high energy density science, inertial fusion energy and high performance computing. [Read more](#)

Bill Conaway is appointed the new director of Planning, Analysis and Evaluation to establish and lead the newly formed operation. [Read more](#)

Steven Koonin is named as an independent governor on the Lawrence Livermore National Security and Los Alamos National Security Boards of Governors. The LLCs manage Lawrence Livermore and Los Alamos national laboratories for the Department of Energy. [Read more](#)

“ Quotables ”

“What would you do if you met another species in outer space?”

– Junction Avenue School (Livermore) student in Spanish to astronaut Joseph Acaba via video link to the International Space Station

OPERATIONS

Parney Albright gives a "director's update" to employees in his second all-hands presentation of the year. [Read more](#)

Lawrence Livermore National Security, LLC (LLNS) kicks off its annual Community Gift Program to benefit local and area non-profit organizations for 2012. The program provides up to \$100,000 in funding to support organizations addressing science, technology, engineering and/or mathematics (STEM) education, community service and philanthropic needs in communities having a large population of employees. [Read more](#)

Participants in the 2012 Get Active campaign attend the closing ceremony and celebrate their achievements. The Lab sets a new DOE record in the Bay Area challenge, which pits local rivals LBNL, SNL and LLNL, to determine the "fittest lab." LLNL has the highest participation — 1,315. This milestone allows the Lab to retain the coveted perpetual "shoe trophy" it captured in 2011. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY

“CO2 is a positive feedback on the climate system.”

– LLNL climate scientist Tom Guilderson

issues and cyber policy governing computer systems, network operation and information protection.

[Read more](#)

The Computation Directorate issues a call for proposals for projects that involve significant unclassified computing resource allocations (greater than two million CPU-hours/yr) on institutional capability systems for up to one year. [Read more](#)



Ellen Tauscher becomes an independent governor on the LLNS board.

Eleven aspiring science teachers spend their summer at LLNL sharpening their technical skills. Through a partnership with the Science Teacher and Researcher (STAR) program managed by the CSU Cal Poly Center for Excellence in Science and Mathematics Education, LLNL provides the pre-service science teachers with paid summer internships mentored by lab researchers.

[Read more](#)

The Strategic Human Resources Management Directorate combines the LAPIS and LHire Help Desk. [Read more](#)

JULY

SCIENCE AND TECHNOLOGY

Fifteen years of work by the Lawrence Livermore National Laboratory's National Ignition Facility (NIF) team pays off on July 5 with an historic record-breaking laser shot. The NIF laser system of 192 beams delivered more than 500 trillion watts (terawatts or TW) of peak power and 1.85 megajoules of ultraviolet laser light to its target. [Read more](#)

Three University of Oklahoma (OU) students, who took part in Innovation for Green Advanced Transportation Excellence (i-GATE) Fellowship Program, present the results of their five-week research project on the potential commercialization of an LLNL clean combustion engine technology. [Read more](#)

LLNL hosts a workshop as part of a 12-week "Cyber Defenders" internship that provides students at all levels with practical experience in understanding security

PEOPLE

Han Wang, a recent UC Berkeley graduate with a bachelor's degree in engineering mathematics, spends his summer as a Lab intern and figures out a way to do imaging with a neutron source. [Read more](#)

In the second round of U.S.-Russia Laboratory Directors Meetings, the three NNSA lab directors visit five Rosatom laboratories. LLNL Director Parney Albright is accompanied by Bruce Warner, principal associate director for Global Security, and Mona Dreicer, deputy program director for Nonproliferation and Arms Control, from Livermore. [Read more](#)

Senior Lawrence Livermore managers meet with future American military leaders at the MARA (Military Academic Research Associates) and Reserve Officer

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



Teacher Dean Reese (right) sets up a small scale wind turbine before a video conference with Lab scientists.

Training Corps (ROTC) intern reception in the West Cafeteria. [Read more](#)

BioSciences and Biotechnology Division Leader Ken Turteltaub joins a panel of industry leaders at the 4th annual Tri-Valley Innovation Forum. The forum is hosted by the Livermore Valley Chamber of Commerce in partnership with the Tri-Valley Convention and Visitor's Bureau. [Read more](#)

An "evolutionary, not revolutionary" vision of stockpile stewardship should blend "science-based understanding" with "engineering-based sustainment" as an alternative to current nuclear-weapon Life Extension Programs, said James Acton, a senior associate at the Carnegie Endowment for International Peace, during a talk at the Lab. [Read more](#)

UC Berkley Professor John Danner, during a Laboratory seminar, says that the "ex factors" are critical when it comes to different ways to pursue innovation and entrepreneurship in public and private organizations. [Read more](#)

Speaking to a nearly full house in the Bldg. 132 auditorium, LLNL retiree Bill Nelson relates his experiences in the field of nuclear emergency response, including his support to the International Atomic Energy Agency (IAEA) that included the infamous Iraq "parking lot caper." [Read more](#)

Summer interns pose many questions about balancing career and family to a panel of five Lab women. The interactive two-hour discussion is the second annual panel sponsored by the Lawrence Livermore Lab Women's Association and the Institutional Education

“ Quotables ”

“Because brain injuries don't appear immediately upon exposure — and take time to develop — this suggests there may be a way to medically intervene with drugs or other therapies that could inhibit or prevent the damage from occurring.”

—Willy Moss, LLNL B Division scientist

Committee. [Read more](#)

OPERATIONS

LLNL's Archives department launches a multimedia timeline about the life of Ernest Lawrence, featuring video clips and photos of the Nobel Prize-winning physicist responsible for creating the Laboratory. [Read more](#)

After extensive review and consideration, all of LLNL's government vehicles and forklifts will be serviced off site through the commercial sector. [Read more](#)

In response to LLNL's increased work with industry, a new training series is offered to equip LLNL's principal investigators and others interacting with companies in the private sector. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



A view of a cryogenically cooled NIF target as “seen” by the laser through the hohlraum’s laser entrance hole. In ignition experiments, the hydrogen in the fuel capsule must be compressed to about 100 times the density of lead.

AUGUST

SCIENCE AND TECHNOLOGY

A two-week session at the Edward Teller Education Center is part of a new Teacher Research Academy in collaboration with the Waksman Student Scholars Program, sponsored by the Waksman Institute at Rutgers University. [Read more](#)

Arizona State University, Princeton, UC Berkeley, and UCLA, as well as Southern California Edison and PG&E, are represented at a two-day “Energy Systems Technical Exchange Workshop,” co-hosted by the Engineering and Computation directorates. [Read more](#)

Lawrence Livermore researchers develop a new capacitive desalination technique that could ultimately lower the cost and time of desalinating seawater. [Read more](#)

The first controlled studies of extremely hot, dense matter overthrow the widely accepted 50-year-old model used to explain how ions influence each other’s behavior in a dense plasma. The results should benefit a wide range of fields, from research aimed at tapping nuclear fusion as an energy source to understanding the inner workings of stars. [Read more](#)

A team of DOE researchers from LLNL, Lawrence Berkeley and Los Alamos national laboratories and SLAC National Accelerator Laboratory significantly advances the understanding of the electronic structure of elements that have electrons occupying f-orbitals. [Read more](#)

“ Quotables ”

“We have 40 or 35 or 20 minutes to get to something. No negotiation tables, no lawyers, no United Nations will change physics. So we have to act mindful of the time constraints of physics. That’s the nature of ballistic missile defense issues.”

— Col. Volker Samanns of Germany during the international Nimble Titan 12 exercise, which LLNL helped organize

A group of experts including LLNL visiting scientist Greg Rau issues a report warning that many marine species will be harmed or won’t survive if the levels of carbon dioxide continue to increase. [Read more](#)

The Lab’s Juergen Biener and Arne Wittstock and colleagues explore the golden element by editing a Royal Society of Chemistry book “Nanoporous Gold: From an Ancient Technology to High-Tech Material.” [Read more](#)

The Laboratory has a starring role in a National Geographic documentary about the sinking of the British passenger ship Lusitania during the early part of World War I. A team of experts at LLNL’s High Explosives Applications Facility participates. [Read more](#)

Stanford University biomechanical engineering student Cesar Ambriz spends 10 weeks working as a U.S.

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Innovation Forum panel participants (left to right): moderator Peter Burrows, Ro Khanna, Anthony Zografos, Christine Wente, Ken Turteltaub and Carl Guardino.

Department of Homeland Security HS-STEM Summer Intern working on a project to create an efficient molecular assay, or investigative procedure, for virus-detection using a biological sample like blood or sputum. [Read more](#)

Under an initiative called FastForward, the Department of Energy, Office of Science and the National Nuclear Security Administration award \$62 million in research and development (R&D) contracts to five leading companies in high performance computing to accelerate the development of next-generation supercomputers vital to national defense, scientific research, energy security, and the nation's economic competitiveness. The program is managed by LLNL on behalf of seven national laboratories. [Read more](#)

LLNL researchers discover a new method to control the conductivity of materials that could eventually apply to fuel cells, batteries and gas sensors. [Read more](#)

PEOPLE

Following a successful 23-year career as a scientist, senior manager and leader at the Laboratory, Tomas Diaz de la Rubia announces he is stepping down from his post as deputy director for Science and Technology to pursue other opportunities. [Read more](#)

Donald Kintzer is named to the Boards of Governors of Lawrence Livermore National Security, LLC (LLNS) and Los Alamos National Security, LLC, assuming the positions previously held by Nicholas Moore. [Read more](#)

“ Quotables ”

“Over the past seven years at PCMDI, I have been the privileged witness of outstanding research on the nature and causes of climate change. I also have been truly inspired by the courage, dedication and insatiable curiosity of my mentors and colleagues.”

– Celine Bonfils, LLNL climate scientist and recipient of DOE Office of Science Early Career Research Program award

A group of science teachers from distinguished magnet schools for gifted and talented students throughout Kyungnam Province in South Korea visit the Lab and tour the National Ignition Facility. The visit is part of an 11-day tour of California institutions and businesses. [Read more](#)

Paul Miller is named to manage the Lab's participation in the ongoing Memorandum of Understanding between the National Nuclear Security Administration and the Defense Threat Reduction Agency. [Read more](#)

Ellen Tauscher is named as an independent governor on the Lawrence Livermore National Security, LLC and Los Alamos National Security, LLC Boards of Governors. The LLCs manage Lawrence Livermore National Laboratory and Los Alamos National Laboratory for the

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Student So Yun Park prepares a DNA sample for analysis while Andrew Vershon, director of the Waksman Student Scholars Program, looks on.

Department of Energy. Tauscher also is appointed as a member of the LANS/LLNS Boards' Mission Committee. [Read more](#)

Bill Goldstein, a 27-year veteran of LLNL, is named acting deputy director for Science and Technology, replacing Tomás Díaz de la Rubia, who left the Lab to pursue other opportunities. [Read more](#)

OPERATIONS

LLNL implements a new Disaster/Self-Help Program that divides the main Lab site into 63 geographic blocks to be used by emergency responders to immediately identify areas for response, evacuation, shelter-in-place and lockdown. [Read more](#)

The Lab celebrates its 14th annual Diversity Day on the Green with the theme "We Are ONE (Open Networking Experience)" and highlighting diversity and inclusion. [Read more](#)

The commercial helium market is seeing significant price increases, regular delivery delays and shortages, which affects the Lab. [Read more](#)

SEPTEMBER

SCIENCE AND TECHNOLOGY

LLNL climate scientist and collaborators find that though there is enough power in the Earth's winds to be a primary source of near-zero emission electric power for the world, large-scale high altitude wind power generation is unlikely to substantially affect climate. [Read more](#)

“ Quotables ”

“These names honor not only the individual contributions of scientists from these laboratories to the fields of nuclear science, heavy element research, and super heavy element research, but also the phenomenal cooperation and collaboration that has occurred between scientists in these two countries.”

– Bill Goldstein, associate director of LLNL's Physical and Life Sciences Directorate, on the names Livermorium and Flerovium being officially approved for the periodic table

LLNL's JASPER gas gun, a key scientific tool for the NNSA's Stockpile Stewardship Program, fires its 100th shot. [Read more](#)

Additive manufacturing becomes a major push for LLNL with an extensive program of research and development through its Center for Micro and Nano Technology. [Read more](#)

Five out of the top 10 *Physics of Plasma* (PoP) papers for all time have LLNL researchers as first authors and co-authors. [Read more](#)



Stanford student Cesar Ambriz, a participant in the U.S. Dept. of Homeland Security's HS-STEM Summer Internship Program, is helping develop a portable diagnostic test to determine the presence of various viral DNA for organisms such as Ebola in biological samples. The goal is to have a reliable assay to aid in quick detection.

PEOPLE

Taylor Wilson, who built a successful fusion reaction at 14, visits the Lab to tour the National Ignition Facility, speak with researchers and share his life's work thus far.

[Read more](#)

The Lab's John Henderson is the sole U.S. participant in a May international field test for the on-site inspection division of the Preparatory Commission for the Comprehensive Nuclear Test-Ban Treaty Organization's Provisional Technical Secretariat. [Read more](#)

Congressman Steve Womack of Arkansas visits LLNL to tour the National Security Vault and the National Ignition Facility and hear briefings on third generation munitions, high explosives research and development and intelligence. [Read more](#)

Deputy Administrator for the NNSA's Defense Programs Donald Cook visits LLNL and reemphasizes the importance of the Stockpile Stewardship Program and the integral role the Lab plays with its many SSP tools such as the National Ignition Facility, the Terascale Simulation Facility, Jasper and the Nevada National Security Site. [Read more](#)

OPERATIONS

Lab employees participate in the inaugural "ShipIt Day," a competition-centered brainstorming marathon

“ Quotables ”

“These awards represent why we're here, which is the excellence of our staff.”

– Bruce Warner, Global Security acting principal associate director, at the annual Global Security Directorate Gold Awards

to develop new ideas for Global Security, Livermore Computing and Applications, Simulations and Quality. [Read more](#)

The NNSA announces that the last of the Security Category I/II special nuclear material items that required the highest level of security at LLNL have been removed. [Read more](#)

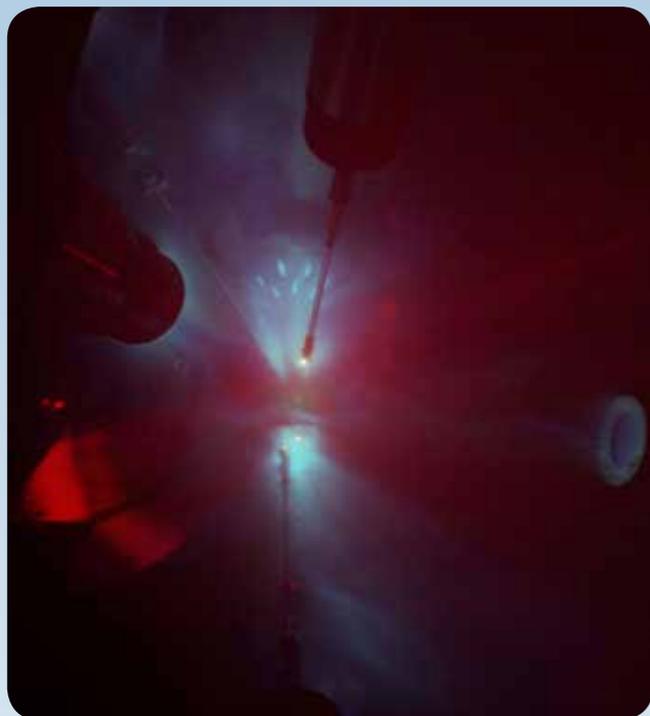
OCTOBER

SCIENCE AND TECHNOLOGY

LLNL researchers make a surprising discovery of self-organized electromagnetic fields, giving scientists a new way to explore how order emerges from chaos in the cosmos. [Read more](#)

An LLNL researcher and a team of international collaborators find a multidisciplinary approach to identifying the remains of missing persons using "bomb pulse" radiocarbon analysis developed at the Lab, combined with recently developed anthropological

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



In the center of the target chamber at the OMEGA Laser Facility, a sample of material is struck with several high-power laser pulses at once. In a nanosecond, a material initially at low pressure and temperature, similar to the Earth's surface, is artificially heated and compressed to its natural state deep within a planet. This extreme state is quickly studied using probes and telescopes pointed at the target before it explodes into a cloud of dust and vapor.

analysis and forensic DNA techniques. [Read more](#)

LLNL scientists and collaborators develop a new military uniform material that repels chemical and biological agents using a novel carbon nanotube fabric.

[Read more](#)

A supercomputer simulation prepared by two Lab physicists and a former postdoc provides insight into a black hole that may devour much of an approaching cloud of dust and gas known as G2. [Read more](#)

The most recent energy flow charts released by LLNL indicate that Americans used less energy in 2011 than in the previous year due mainly to a shift to higher-efficiency energy technologies in the transportation and residential sectors. [Read more](#)

LLNL researchers push fast ignition research ahead into new regimes. [Read more](#)

Lawrence Livermore researchers develop a new bulk material with physical properties that can be dynamically changed by an external signal. [Read more](#)

PEOPLE

Mayra Padilla is the keynote speaker during the Lab's recognition of Hispanic Heritage Month, and delivers the speech "A Scientist Making a Difference in the STEM Pipeline." [Read more](#)

Dr. Ernie Bodai visits the Lab to discuss his one-man

“ Quotables ”

“There's just no question that if we want to look after the safety and security and the reliability of America's nuclear deterrent, we need to put it in the hands of the smartest people who will really ensure that these weapons remain safe, secure and reliable.”

— Don Cook, NNSA's deputy administrator for Defense Programs on the high caliber of the LLNL workforce, at the NNSA Defense Programs Awards of Excellence

campaign to introduce the Breast Cancer Research Stamp. [Read more](#)

LLNL welcomes Jeff McCausland, distinguished visiting professor of research and Minerva chairholder at the U.S. Army War College's Strategic Studies Institute, to share his views on the Treaty on Conventional Armed Forces in Europe. [Read more](#)

The Laboratory hosts 18 faculty members from 14 of the nation's Historically Black Colleges and Universities. [Read more](#)

Advisory board members from the newly created Tribal Clean Energy Resource Center (TCERC) visit LLNL. [Read more](#)

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY



JASPER staff inside the outer containment vessel inspect the sealed inner chamber, which houses the plutonium target.

Matthew Kroenig, assistant professor of government at Georgetown University, visits LLNL to present “U.S. Policy on Iran’s Nuclear Program.” [Read more](#)

Former DOE Undersecretary of Science Steve Koonin, now director of the Center for Urban Science and Progress at New York University, speaks to LLNL employees about “The Promise of Urban Science.” [Read more](#)

OPERATIONS

The 20th Annual San Joaquin Expanding Your Horizons conference, co-sponsored by LLNL, welcomes more than 500 participants to attend three hands-on workshops and interact with scientists and engineers. [Read more](#)

LLNL’s Site Annual Environmental Report 2011 shows that environmental monitoring of operations at both the LLNL main site, as well as Site 300, indicate no adverse impact to public health or the environment from Laboratory operations. [Read more](#)

East Coast emergency responders assisting people in the wake of Hurricane Sandy receive a helping hand from LLNL’s Web-based Homeland-Defense Operational Planning System. [Read more](#)

Science & Technology Day highlights the Lab’s impressive record of innovation with featured speakers and panel discussions and a special awards ceremony. [Read more](#)

“ Quotables ”

“There are more people here than at an all-hands meeting.”

– Lab Deputy Director Tom Gioconda at the opening presentation of “Take Our Daughters and Sons to Work Day” in the Bldg. 123 auditorium

Director Parney Albright gives Las Positas students his view of a successful science career. [Read more](#)

Director Parney Albright highlights successes and the challenges ahead during an all-hands presentation. [Read more](#)

Hundreds of employees gather at three outdoor locations across the site to recognize the Lab’s 60th anniversary. [Read more](#)

The Run for HOME kicks off the Helping Others More Effectively (HOME) Campaign and salutes the season of giving. [Read more](#)

Health Services begins offering drop-in flu clinics every Tuesday. [Read more](#)

NOVEMBER

SCIENCE AND TECHNOLOGY

Sequoia explores a broad range of science to shake out the machine and fully develop the capabilities the



Congressman Steve Womack (right) toured the Center for Micro and Nano Technology with additive manufacturing program leader Chris Spadaccini.

system will require to fulfill its national security missions, starting early next year. [Read more](#)

A bug repellent for supercomputers proves effective. LLNL researchers use the Stack Trace Analysis Tool (STAT), a highly scalable, lightweight tool to debug a program running more than one million MPI processes on the IBM Blue Gene/Q (BGQ)-based Sequoia supercomputer. [Read more](#)

Laboratory researchers make key contributions to a physics experiment that will look for one of nature's most elusive particles, "dark matter," using a tank nearly a mile underground beneath the Black Hills of South Dakota. [Read more](#)

LLNL and the Georgetown University School of Continuing Studies join forces to create a new master's program in emergency and disaster management (EDM), which is set to launch in fall 2013. [Read more](#)

By comparing simulations from 20 different computer models to satellite observations, Laboratory climate scientists and colleagues from 16 other organizations find that tropospheric and stratospheric temperature changes are clearly related to human activities. [Read more](#)

Changes in ocean salinity over the second half of the 20th century are consistent with changes driven by human activities and are inconsistent with natural climate variations, according to a study by LLNL. [Read more](#)

LEXI is a new robot at work in the firing tanks of LLNL's High Explosives Applications Facility (HEAF) and the

“ Quotables ”

“A full understanding of the early stages of the radiation damage process provides knowledge and tools to manipulate them to our advantage.”

— Alfredo Correa, an LLNL Lawrence Fellow from the Quantum Simulations Group

work that's done there for the National Explosives Engineering Sciences Security (NEXESS) Center. [Read more](#)

High performance computing technology changes with stunning speed, proves supreme at SC12. [Read more](#)

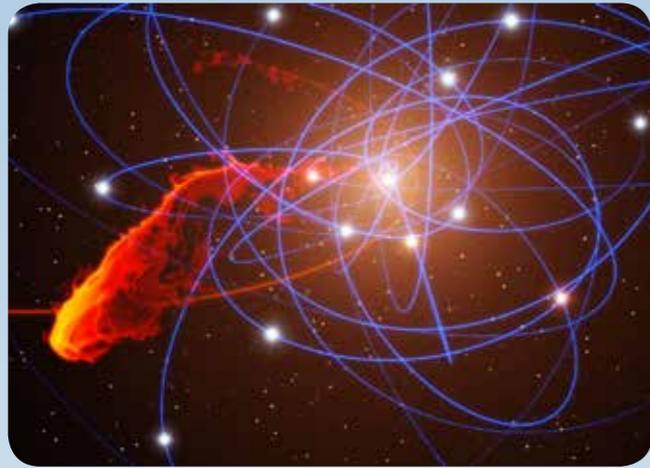
The National Nuclear Security Administration sponsors the installation of a 336-processor computing cluster at the National Atmospheric Release Advisory Center (NARAC) so that the facility can provide consequence predictions for hazardous material releases approximately 50 times faster than with the previous cluster. [Read more](#)

LLNL organizes a technical training workshop for a group of seismologists and geologists from Iraq at the Middle East Scientific Institute for Security (MESIS) in Amman, Jordan. [Read more](#)

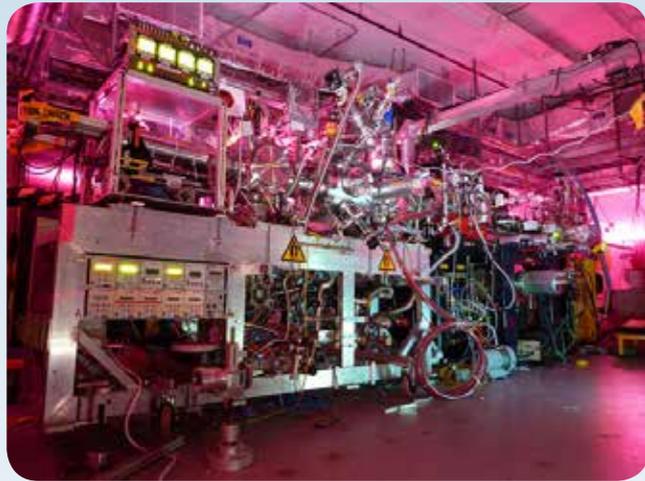
PEOPLE

Fred Streitz, a Laboratory physicist and computational

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Simulations of the dust and gas cloud G2 on its orbit around the Milky Way central black hole SgrA*.



A photograph of the instrument setup for an astrophysics experiment at the SLAC National Accelerator Laboratory's Linac Coherent Light Source (LCLS), a powerful X-ray laser. The experiment was conducted in the Soft X-ray hutch using this electron beam ion trap, or EBIT, built at the Max Planck Institute in Heidelberg, Germany.

scientist, presents a groundbreaking supercomputer simulation capability to realistically and rapidly model a beating human heart to better understand fatal diseases during the innovator presentation track of the "Partnering for Cures" conference.

Whether it is designing a cleaner more efficient combustion engine, analyzing energy use in buildings or improving oil and gas drilling methods, energy companies agree that LLNL supercomputers and expertise are showing them ways to "think differently" and accelerate the development of new products and services during the "hpc4energy Incubator" workshop. [Read more](#)

Brian Cracchiola describes the conditions faced by U.S. soldiers in Afghanistan during his Veterans Day talk entitled, "Unraveling the Gordian Knot: The Counterinsurgency Training Center-Afghanistan (CTC-A)." [Read more](#)

Mike Conklin, chairman and CEO of the Sentinels of Freedom Scholarship Foundation, speaks at LLNL about the non-profit organization he founded in 2004, whose mission is to help permanently disabled veterans become more productive and self-sufficient members of their community. [Read more](#)

Deputy Director Tom Gioconda underlines the importance of Lean Six Sigma as he recognizes 18 employees who achieved Lean Six Sigma certifications. [Read more](#)

Mike Payne is selected as the associate director (AD) for Business. [Read more](#)

“ Quotables ”

“The bottom line is that this study substantially strengthens the conclusion that most of the observed global ocean warming over the past 50 years is attributable to human activities.”

– Peter Gleckler, an LLNL climate scientist

Lisa Woodrow is selected as institutional champion and functional area manager for the Institution-Wide Work Planning and Control Process (WP&C). [Read more](#)

Blue Star Moms pick up LLNL donations collected as part of the HOME Campaign, with enough to fill some 2,500 boxes that will be shipped overseas to U.S. troops for the holidays. [Read more](#)

Barbara Peterson retires and John Lewis is selected as acting associate deputy director of operations. [Read more](#)

LLNL celebrates Veterans Day with Lab Ride 9. [Read more](#)

American Indian Heritage Month is celebrated with a talk by Diane Humetewa, a special adviser of American Indian Affairs to the president of Arizona State University, and the showing of the film, "We Shall Remain: America Through Native Eyes." [Read more](#)

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“It’s rare you get the chance of increasing a sensitivity factor by more than 100 times better than current methods. This is really a game changer.”

– Astrophysicist Bill Craig, referring to the Nuclear Spectroscopic Telescope Array (or NuSTAR)

LLNL participates in America Recycles Day Nov. 15 by offering an on-site shredding service of employees’ personal documents and offers two free showings of the award-winning film, “Bag It.” [Read more](#)

Lawrence Livermore makes changes to its workforce management policies that will become effective no later than Jan. 1, 2013. The changes will help the Laboratory effectively manage its workforce to meet mission and business needs. [Read more](#)

The HOME (Helping Others More Effectively) Campaign hits the \$1 million mark. [Read more](#)

The Laboratory maintains its certification to the ISO 14001 standard after the August 2012 EMS triennial recertification audit. [Read more](#)

The UNCLE Credit Union makes a donation of \$2,500 in support of the 2012 HOME Campaign’s change collection, “every bit counts.” The funds will assist the Fleet Reserve Association (FRA) of Livermore, Branch 287 in providing scholarships to local veterans. [Read more](#)

OPERATIONS

LLNL plans to establish and use an on-site solar electrical-generation system that not only will provide a clean, renewable source of energy, but also an additional capability for Lab energy research and development efforts. [Read more](#)

Lawrence Livermore is one of six Department of Energy sites that will receive funding, along with 22 Historically Black Colleges and Universities, for research areas in science, technology, engineering and mathematics. [Read more](#)

LLNL and the Department of Energy host a Community Working Group meeting to discuss ongoing cleanup of historic groundwater contamination at the Laboratory’s Livermore site. [Read more](#)

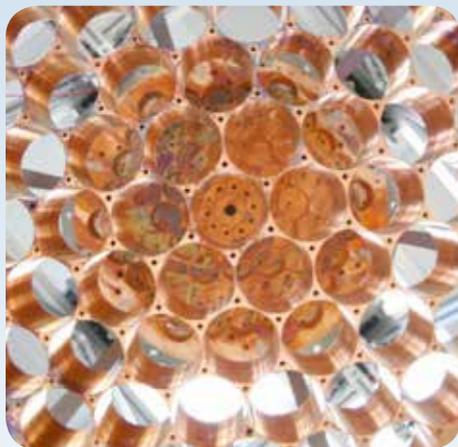
Lawrence Livermore National Security, LLC (LLNS), the contract manager for LLNL, announces the recipients for the 2012 LLNS Community Gift Program. The gifts, totaling \$100,000, are given out to 26 groups. [Read more](#)

LLNL’s Underground Coal Gasification (UCG) Program receives a two-year research grant to study water-quality hazard mitigation strategies from the Office of Surface Mining Reclamation and Enforcement. [Read more](#)

LLNL’s Vic Castillo and Sandians Daniel Casner and Maynard Holliday team up with state Innovation Hub i-GATE to launch Robot Garden, a hackerspace designed to serve entrepreneurs, inventors and students in the Tri-Valley area. [Read more](#)



Acting Deputy Director of Science & Technology Bill Goldstein kicks off the morning session of Science & Technology Day.



Shown is a top-down view of the Lawrence Livermore National Laboratory-designed and built copper photomultiplier tube mounting structure, which is a key component of the LUX detector.

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Brian Cracchiola



Matthew Myrick and Christian Mailhot

YELLOW LINKS AVAILABLE ON LLNL INTRANET ONLY

DECEMBER

SCIENCE AND TECHNOLOGY

An international collaboration including researchers from Lawrence Livermore National Laboratory refine a key process in understanding extreme plasmas such as those found in the sun, stars, at the rims of black holes and galaxy clusters. [Read more](#)

Lab researchers and university scientists gather at a Lab-hosted workshop for “Advancing Seismology and Geodynamics through High Performance Computing.” [Read more](#)

A new understanding of planetary evolution could emerge from studies of the behavior of magnesium oxide under high pressures and temperatures, such as those found in the interior of Earth and Earth-like planets. In an article published by *Science Express*, a team of UC Berkeley and LLNL researchers, led by former LLNL researcher Stewart McWilliams, report on the behavior of magnesium oxide under the extreme conditions found deep within planets. [Read more](#)

The National Nuclear Security Administration commemorates the 20th anniversary of the last nuclear explosive test on U.S. soil during a special video teleconference on Dec. 12. [Read more](#)

The Laboratory partners with North Dakota State University (NDSU) to collaborate on research and development projects involving computational-based modeling and simulation for energy and energy-related

“Computing platforms like Sequoia help the United States keep its nuclear stockpile safe, secure and effective without the need for underground testing.”

– NNSA Administrator Thomas D’Agostino

applications. [Read more](#)

Planning the future needs of the U.S. nuclear weapons stockpile as well as the nuclear weapons complex depends in part on maintaining confidence in the long-term stability of the pit, or core, of plutonium-239 residing inside every weapon. Scientists and engineers who ensure the safety and reliability of the nation’s stockpile have long been concerned that the damage accumulated over decades as plutonium-239 self-irradiates could eventually compromise weapon performance. [Read more](#)

As 2012 draws to a close, the National Nuclear Security Administration (NNSA) compiles a list of some of its most important accomplishments and improvements over the past year. The NNSA, in conjunction with its Management & Operating contractor partners, reaches significant milestones in its nonproliferation and counterterrorism portfolios, makes a host of significant achievements through its work with the U.S. nuclear weapons stockpile, and maintains a constant focus on continuous improvement. [Read more](#)

The California Public Utilities Commission approves an agreement outlining how California utilities will use the



(From left) Wes Spain, director of the Lab's Office of Strategic Outcomes, talks with Lukasz Koziol, Alexis Dunkle and Windy McNerney, at the annual Institutional Postdoc Program offsite.

advanced technologies and expertise of Lawrence Livermore to improve the efficiency, security and safety of the state's utility systems. [Read more](#)

PEOPLE

In a frank and often-critical overview, Gen. James Cartwright (retired) describes how and why the United States needs to improve its planning for cyber warfare. Cartwright headed the U.S. Strategic Command (STRATCOM) from 2004 until 2007, when he was appointed vice-chairman of the Joint Chiefs of Staff, becoming the nation's second-highest military officer. He strongly believes in the value of cyber as a military weapon. When he took over Stratcom, he ordered a full review of all weapons that work at the speed of light. [Read more](#)

Iraqi Ambassador to Austria Surood Rashid Najib submits an official letter from the Iraqi Foreign Minister to Yukiyo Amano, director general of the International Atomic Energy Agency (IAEA), announcing the ratification and entry into force of the Additional Protocol to its Comprehensive Safeguards Agreement. [Read more](#)

Doug Modlin's reasons for contributing to the annual Helping Others More Effectively (HOME) campaign touch on a very special person in his life — his daughter Anna Modlin who was born with cystic fibrosis. A chief engineer in Global Security, Moudlin lends his support to several of the HOME organizations available for Lab employee contributions — Cystic Fibrosis Research, Inc. and the California Transplant Donor Network (CTDN). [Read](#)

“ Quotables

“We are so lucky to have a national lab in our backyard.”

- Junction Avenue School Principal Jamal Fields about the Lab's help in acquiring a videoconference with astronauts at his school

[more](#)

“How to navigate a successful career at the Lab” is the theme of this year's annual Institutional Postdoc Program career development offsite meeting at the Martinelli Event Center in Livermore. The focus of the afternoon is how postdocs can enhance their careers at the Lab. [Read more](#)

Retired Lab engineer Nick Williams and Discovery Center coordinator Diane Nelson bundle up in heavy winter coats and warm hats, board a total of nine airline flights and travel some 5,500 miles — all in the name of science. Their mission: to take the Lab's “Fun With Science” show on the road to students living in Alaska — The Last Frontier. [Read more](#)

OPERATIONS

Lawrence Livermore National Laboratory employees, along with Lawrence Livermore National Security, LLC (LLNS), raise more than \$3.5 million to give to charities within their surrounding communities. [Read more](#)

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Parney Albright

Visit www.llnl.gov for more news and events at LLNL.

The Internal Revenue Service announces that the maximum contribution limits to the 401(k) plan will increase in 2013. The annual contribution an employee can make in 2013 will rise to \$17,500 (combined for pre-tax and Roth), an increase of \$500. In addition, employees age 50 or older as of Dec. 31, 2013 can contribute an extra \$5,500 by making a separate catch-up contribution election (no change). [Read more](#)

When Laboratory engineers want to network, find resources or receive feedback and encouragement, a new one-stop, Web-based resource is now available to assist them called "Career Development for Engineers." The employee-driven program created by the Engineering Directorate and Strategic Human Resources Management (SHRM) is open to all professional scientists and technical staff employees from the Engineering Directorate and from the Operations and Business Principal Directorate. [Read more](#)

Employees are allowed to bring government and non-government owned portable electronic devices (PEDs) into Limited Area buildings. Employees need to heed new signs installed on building entrances, and rooms within buildings. [Read more](#)

The Office of Strategic Outcomes (OSO) hosts an online video conference for employees about the effort to expand the Laboratory's missions outside DOE and NNSA. The video conference kicks off a series of talks by OSO Director Wes Spain that aim to provide an overview of program development resources available to employees, sponsor trends and the strategic plan for interagency growth in FY13. [Read more](#)

“ Quotables ”

“Think about this: When it hits, you’ve got a bullet that is about the size and weight of an ice cube. It has as much kinetic energy as a Toyota Corolla going down the highway at 50 mph.”

– Neil Holmes, JASPER’s chief scientist

The annual salary review process kicks off with managers and will continue through January. Employees will receive salary notifications from their supervisors beginning the week of Feb. 3, and increases will appear in Feb. 15 paychecks. [Read more](#)

The Laboratory will be open for normal business on Jan. 2, 2013, no matter what happens in the last days of 2012 in Washington with the FY13 budget between now and the deadline for sequestration (Jan. 1). [Read more](#)

The Livermore Site Office (LSO) releases its performance evaluation assessment of the Laboratory’s performance for fiscal year 2012. [Read more](#)

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AWARDS & RECOGNITION 2012



John Edwards

John Edwards, LLNL associate program director for inertial confinement fusion (ICF) and high energy density (HED) science, is selected as a 2011 American Physical Society (APS) fellow. [Read more](#)

Laboratory employees **David Fittinghoff and Edward Moses** are elected as fellows of the Optical Society of America (OSA). Fittinghoff is a physicist in the Physics Division and Moses is the principal associate director for the NIF and Photon Science Directorate. [Read more](#)

Erik Swanberg, a graduate student working in the Lab's Experimental Nuclear Physics Group, receives the Margaret Burbidge Award from the American Physical Society (APS) California Section at the organization's fall 2011 meeting. [Read more](#)

Christopher Barty, chief technology officer for LLNL's National Ignition Facility and Photon



Science Directorate, is one of 75 newly named fellows of SPIE (the international society for optics and photonics). [Read more](#)

Don Roberts, of the Lab's Weapons and Complex Integration Directorate, is the latest recipient of the National Nuclear Security Administration's Defense Programs' Employee of the Quarter Award. [Read more](#)

The Laboratory's Counterintelligence Program (**SAFE**) wins the DOE Office of Intelligence and Counterintelligence Director's Award for Exceptional Service for 2011. Each year only one DOE Field Intelligence Element (FIE) or Counterintelligence (CI) Field Office is recognized with the award for exceptional service. [Read more](#)

Kramer Akli is named one of the recipients of the 2012 Air Force Office of Scientific Research (AFOSR) Young Investigator award. Akli



David Fittinghoff

completed his original thesis work at LLNL as a graduate student at the University of California, Davis. [Read more](#)



Erik Swanberg

Ten Laboratory researchers are named Distinguished Members of Technical Staff (**DMTS**) for their extraordinary scientific and technical contributions to the Laboratory. **Jim Candy** of the Engineering Directorate, **John Castor** of the Weapons and Complex Integration Principal Directorate, **Jim Hammer** of WCI, **Omar Hurricane** of WCI, **Neil Joeck** of the Global Security Principal Directorate, **Nino Landen** of the NIF and Photon Science Principal Directorate, **Ken Moody** of the Physical and Life Sciences Directorate, **Bruce Remington** of NIF, **Dmitri Ryutov** of the Physical and Life Sciences Directorate and **Tom Slezak** of Global Security earned the DMTS designation by reaching the highest technical staff level achievable by a scientist or engineer at the Lab. [Read more](#)

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AWARDS & RECOGNITION 2012

LLNL Director Parney Albright honors the winners of the 2011 **R&D 100** award at a reception organized by the Industrial Partnership Office. This year's winners are the latest in an unbroken chain of successes going back more than 30 years. [Read more](#)

Lab geophysicist **Arthur Rodgers** receives an award from the Defense Threat Reduction Agency for his work in nuclear forensics. A researcher in the Atmospheric, Earth & Energy Division of the Physical & Life Sciences Directorate, Rodgers is named the "top contributor of the quarter" for the first quarter of fiscal year 2012 (October-December 2011) for a forensic analysis project. [Read more](#)

Penny Wozniakiewicz, a postdoc who has been working in the Lab's Institute of Geophysics and Planetary Physics, is awarded the prestigious Marie Curie Fellowship under the International Incoming Fellowships scheme of the European

Commission on Research and Innovation. [Read more](#)

Sidney Drell, a member of the LLNL/LANS Board of Governors, receives the National Nuclear Security Administration (NNSA) Administrator's Gold Medal of Excellence for Distinguished Service, the highest honorary award granted by the NNSA. NNSA Administrator Thomas D'Agostino presents the award to Drell in recognition of his many years of exceptional contributions to Los Alamos and Lawrence Livermore national laboratories, the NNSA, the Department of Energy (DOE) and the nation. [Read more](#)

Material scientist **Troy Barbee** is the most recent recipient of the Naval Research Laboratory's (NRL) Alan Berman Research Publication Award for his work looking into the makeup of a white dwarf. The NRL award recognizes the best publications from each division within NRL. [Read more](#)



Crystal Green



Jeff Banks

Dawn Shaughnessy, group leader for experimental nuclear and radiochemistry and the principal investigator for the heavy element group at the Lab, earns her place in the Alameda County Women's Hall of Fame for 2012 and is honored at a ceremony in Oakland. Shaughnessy is recognized for her work in science, in particular for her role in the discovery of the newest heavy element to be accepted to the periodic table — element 116, which is named Livermorium. [Read more](#)

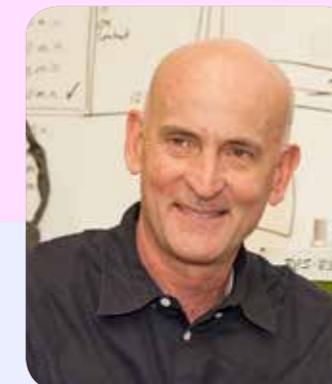
The Lab receives the Co-op Employer of the Year award from the University of the Pacific School of Engineering and Computer Science and is recognized as the employer that has brought great contributions to its co-op program. [Read more](#)

LLNL's **Christopher Keane and Jane Long** are awarded the distinction of fellow of the American Association for the Advancement of Science (AAAS). Keane is recognized for

AWARDS & RECOGNITION 2012



Heather Whitley



Mark Rowland

“distinguished technical and scientific leadership in developing inertial confinement fusion and high energy density science, and leading a robust global science community in this area.” Long is recognized by AAAS for “distinguished contributions to assessing the societal implications of technology development, including in areas of climate change, geoengineering, nuclear waste and energy technology.” [Read more](#)

Mark Rowland, a physicist in Global Security’s “N” Program, is named a senior member of the Institute of Electrical and Electronics Engineers (IEEE). Fewer than 8 percent of IEEE members attain this level. Rowland, who joined the Laboratory in 1984, has worked in the field of radiation detection for much of his 28-year career. [Read more](#)

Lynn Seppala is named a senior member of the Optical Society of America (OSA), an international society for optics and photonics scientists, engineers, educators and business leaders. [Read more](#)

DOE announces that four Lawrence Livermore National Laboratory scientists have been awarded \$10 million in funding through the Department of Energy Office of Science Early Career Research Program (**ECRP**). [Read more](#)

The Lab receives a Best in Class award from NNSA in the Integrative Planning and Design category for the “**High Performance Computing Innovation Center: LLNL Program and Facility Development With the Environment in Mind.**” [Read more](#)

The Global Security Principal Directorate honors the recipients of its **2012 Gold Awards** during a ceremony. The awards recognize singular achievements — work that shows technical achievement well beyond normal expectations, heroic effort, responsibility or accomplishment above and beyond an employee’s normal duties, or work with national impact. [Read more](#)

Seven teams of Lab researchers and engineers

are honored during the presentation of the **NNSA Defense Programs Awards of Excellence**. Don Cook, NNSA’s deputy administrator for Defense Programs, presents the awards and pays homage to the high caliber of LLNL’s workforce. [Read more](#)

An awards ceremony recognizing employees’ environmental efforts wraps up the Lab’s Earth Week 2012 activities. [Read more](#)

Lab physicist **Roger White**, a designer in B-Division from the Weapons and Complex Integration (WCI) Directorate and a principal investigator for nuclear forensics design, receives an award from the Defense Threat Reduction Agency (DTRA) for his work in post-detonation nuclear forensics. White is named the “top contributor of the quarter” for the second quarter of fiscal year 2012 (January-March) for integrating a multi-lab effort to develop a prompt diagnostics research event scheduled for early this spring. This marks the second straight quarter a Laboratory employee has received such an award. [Read more](#)

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AWARDS & RECOGNITION 2012



From left, John Suttora, Michael Mosby, Art Kobayashi, Jim Swanson and Parney Albright.

LLNL researchers win six awards for their efforts in developing breakthrough technologies with commercial potential. *R&D Magazine* announces the winners of its annual **R&D 100 Awards**, sometimes called the “Oscars of Invention. The Laboratory serves as the principal developer in four of the awards, while the other two were joint submissions. The awards are presented in November. [Read more](#)

An article written by an LLNL scientist and five other researchers about remediating an American airport after a chemical warfare attack is named “Risk Management Paper of the Year” for 2011 by the journal *Human and Ecological Risk Assessment (HERA)*. The paper, published in the January-February 2011 edition of *HERA*, is written by **Ellen Raber**, deputy program manager for Counterterrorism in the Lab’s Office of Strategic Outcomes, two former LLNL employees, and three other researchers. [Read more](#)

LLNL postdoc **Frédéric Pérez** is one of three recipients of this year’s Ph.D. Research Award from the Plasma Physics Division of the European Physical Society (EPS). Pérez receives the award for his work on his doctoral thesis, “Study of supra-thermal electron transport in solid or compressed matter for the fast-ignitor scheme.” His research focuses on addressing experimentally some of the physics of the fast ignition concept, one of the possible routes toward laser-driven nuclear fusion. [Read more](#)

A team of researchers are named recipients of the 2012 John Dawson Award for Excellence in Plasma Physics Research for a far-reaching discovery about laser-matter interaction with important implications for the National Ignition Facility (NIF). The award, established by the American Physical Society, goes to LLNL’s **Debbie Callahan, Ed Williams, Nathan Meezan, Laurent Divol, Bob Kirkwood and Pierre Michel**, as well as **George**

Kyrala of Los Alamos National Lab. [Read more](#)

Director Parney Albright and Deputy Director Tom Gioconda recognize three employees at the monthly performance review meeting for achieving certification as Lean **Six Sigma Black Belts**. Black belts are full-time experts in the use of Lean and Six Sigma tools and methods. Lean and Six Sigma are well-established, proven approaches to improving the efficiency and effectiveness of work processes. Black Belts work with LLNL managers to identify and scope improvement initiatives and lead process improvement project teams. [Read more](#)

Michel McCoy, whose pioneering work in high performance computing established LLNL as a world renowned supercomputing center, is honored with the National Nuclear Security Administration’s Science and Technology Award. McCoy receives the award for “16 years of dedicated and relentless

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AWARDS & RECOGNITION 2012



From left: Michelle Quick, LLNL's Small Business Program manager, and Kelly Miller, Supply Chain Management department head, display the FY11 M&O Small Business Achievement of the Year award, with contract administrators Larry LeBel and Becky Ip.

pursuit of excellence" from NNSA Administrator Thomas D'Agostino. Calling HPC "the lifeblood of NNSA science and technology," D'Agostino says McCoy's leadership in HPC "has had a global impact." [Read more](#)

Yu-hsin Chen, an LLNL postdoc in the NIF and Photon Science Directorate, receives the 2012 Marshall N. Rosenbluth Outstanding Doctoral Thesis Award by the American Physical Society Division of Plasma Physics. The award, sponsored by General Atomics, was established to recognize "exceptional young scientists who have performed original thesis work of outstanding scientific quality and achievement in the area of plasma physics." Chen works on high-power, ultrafast short-pulse laser systems. His thesis, "The Ultrafast Nonlinear Response of Air Molecules and Its Effect on Femtosecond Laser Plasma Filament in Atmosphere," focuses on the fundamental

understanding of the physics of filamentation. [Read more](#)

Two young LLNL researchers receive Presidential Early Career Awards for Scientists and Engineers (PECASE) for work in computational science and physics. This is the highest honor bestowed by the U.S. government on outstanding scientists and engineers, who are early in their independent research careers. The LLNL winners are **Heather Whitley**, a design physicist, and **Jeffrey Banks**, a computational scientist. [Read more](#)

The Laboratory receives the FY11 **M&O Small Business Achievement** of the Year award from the Department of Energy's Office of Economic Impact and Diversity, Office of Small and Disadvantaged Business Utilization. It recognizes LLNL's efforts and commitment as a small business advocate that "takes every opportunity to utilize

small business concerns to meet its requirements." This is the first such DOE award received by the Lab and reflects the achievement of a 2011 NNSA performance goal of 45 percent of total estimated subcontracting efforts toward small businesses. The Lab actually achieved 62.2 percent. [Read more](#)

LLNL nuclear engineer **Susana Reyes**, leader of Laser Inertial Fusion Energy (LIFE) Licensing and Tritium Systems, is elected vice-chair of the American Nuclear Society (ANS) Fusion Energy Division and will serve as chair in 2013. Reyes has more than 12 years of experience in international fusion projects. [Read more](#)

Crystal Green, a summer intern in the Nuclear Criticality Safety Division, is awarded a \$1,500 scholarship by the American Nuclear Society's Columbia, S.C. chapter. Green is working on her

AWARDS & RECOGNITION 2012



Don Cook, NNSA's deputy administrator for Defense Programs, congratulates Peter Anninos, one of the recipients of an NNSA Defense Programs Award of Excellence.

bachelor's degree in nuclear engineering with a minor in physics at South Carolina State University, and will graduate in 2014. [Read more](#)

Two Laboratory biomedical scientists are named fellows. **Carolyn Hall and Dina Weilhammer** both work in LLNL's Biosciences and Biotechnology Division. Hall, 34, a microbiologist and analyst with the Biodefense Knowledge Center, is selected as a 2012-13 Fellow of the Emerging Leaders in Biosecurity Initiative. Weilhammer, 30, an immunologist, is named a 2012-13 American Association of Immunologists Public Policy Fellow. [Read more](#)

Stephen Klein, a climate scientist working in the Program for Climate Model Diagnosis and Intercomparison, is awarded the American Geophysical Union (AGU) Atmospheric Sciences Section's Ascent Award. The AGU recognizes Klein's research "elucidating the role of clouds in

climate change and the fidelity with which climate models simulate clouds." As a specialist in climate simulation models and cloud behavior, Klein is a lead author or co-author on more than 65 peer-reviewed publications. [Read more](#)

LLNL researchers and the Lab's economic development director receive three regional awards for technology transfer by the **Federal Laboratory Consortium**. [Read more](#)

The Lab's Sequoia supercomputer receives a **2012 Breakthrough Award** from *Popular Mechanics* magazine. [Read more](#)

LLNL nuclear engineer **Susana Reyes** is the 2012 recipient of the American Nuclear Society Mary Jane Oestmann Professional Women's Achievement Award. [Read more](#)

The NNSA recognizes three award-winning

environmental stewardship projects with **2012 Environmental Awards**. [Read more](#)

Four teams of Lab researchers and engineers and one individual are honored during the presentation of the **NNSA Defense Programs Awards of Excellence**. [Read more](#)

LLNL scientists and engineers participate in 23 projects through the **UC Fee Grant program**, receiving \$7.6 million in funding. [Read more](#)

A cadre of 15 former LLNL scientists and engineers are inducted into the Lab's new **Entrepreneurs' Hall of Fame**. Once in the commercial world, the LLNL EHF inductees started 23 companies and developed about 50 products. [Read more](#)

The development of a simple tool for quickly sharing information about cyber threats earns **Matt Myrick** and a multi-lab team of collaborators

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AWARDS & RECOGNITION 2012



LLNL's Steve Homann, who is serving as the Department of Energy's senior science adviser for the NASA Mars Science Laboratory mission, holds a filter for an Environmental Continuous Air Monitor (shown in the background).

recognition as one of the most important cyber security innovations of the year. [Read more](#)

Four Lab postdocs with an exceptional level of accomplishment receive **Outstanding Postdoc Awards** from the Physical and Life Sciences Directorate (PLS). [Read more](#)

Four LLNL teams receive **Director's Awards** as part of Science & Technology Day activities. [Read more](#)

Longtime Lab researcher **Dick Post** receives the

Laboratory's first Lifetime Achievement Award from Director Parney Albright. [Read more](#)
Isom Harrison, the Lab's Library director,

receives the 2012 Lifetime Service award from the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers for his work as the organization's Western region chair. [Read more](#)

Research projects ranging from the development of new antibiotics for drug resistant bacteria to understanding dark matter in the universe are among those allocated time on Laboratory supercomputers under the recently announced Institutional Unclassified Computing **Grand Challenge Awards**. [Read more](#)

Six LLNL researchers receive nearly \$2.75 million in research awards for their projects through the **Joint Program in High Energy Density**

Laboratory Plasmas. [Read more](#)

The Lab's **Steve Homann** receives a Secretary of Energy Achievement Award for his role as senior science adviser for radiological contingency planning in the Mars Science Laboratory Multi-Mission Radioisotope Thermal Generator (MSL MMRTG) team. [Read more](#)

A new technology developed by LLNL researchers for detecting nuclear materials wins a first place award in *Government Security News* magazine's fourth annual **Homeland Security Awards** competition. [Read more](#)

Visit www.llnl.gov for more news and events at LLNL.

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